UNIVERSITÀ DI PAVIA

Anno Accademico 2019/2020

STRUCTURAL MEASURES FOR FLOOD RISK MITIGATION

Anno immatricolazione	2018/2019
Anno offerta	2019/2020
Normativa	DM270
SSD	ICAR/01 (IDRAULICA)
Dipartimento	DIPARTIMENTO DI INGEGNERIA CIVILE E ARCHITETTURA
Corso di studio	CIVIL ENGINEERING FOR MITIGATION OF RISK FROM NATURAL HAZARDS
Curriculum	Hydrogeological risk assessment and mitigation
Anno di corso	2°
Periodo didattico	Primo Semestre (23/09/2019 - 16/10/2019)
Crediti	6
Ore	51 ore di attività frontale
Lingua insegnamento	English
Tipo esame	SCRITTO E ORALE CONGIUNTI
Docente	GHILARDI PAOLO (titolare) - 6 CFU
Prerequisiti	Basic knowledge of hydraulics or fluid mechanics is required. A knowledge of the main concepts of sediment transport mechanics, slope stability, hydrological processess and groundwater flow is warmly suggested.
Obiettivi formativi	This course describes, analyses and compares the main practical solutions for flood risk mitigation, e.g., levees, detention basins, floodways, tools for river bank protection and for control of local scour, devices for river training, and special design techniques to be applied to buildings in flood prone areas. Design techniques and selection criteria of risk mitigation measures are discussed throughout this course.
Programma e contenuti	1. Geomorphic assessment of natural streams - field investigation, channel stability assessment, computational design methods.

	2. River protection - Stream bank erosion, river training and stabilization, flow control structures. 3. Bank protection and stabilization - General principles, Riprap design and placement, bioengineering countermeasures and erosion control. 4. Scour protection at bridges and other structures - design of scour control devices for bridge piers, bridge abutments and other structures. 5. Levees - physical processes and tools for levee assessment and design. 6. Structural measures for reducing flood risk to buildings.
Metodi didattici	lectures with slides and multimedia. Numerical exercises with discussions on typical case studies, also using numerical tools.
Testi di riferimento	Course notes will be provided during the course.
Modalità verifica apprendimento	Written test on case studies, followed by oral discussion.
Altre informazioni	
Obiettivi Agenda 2030 per lo sviluppo sostenibile	$lbl_legenda_sviluppo_sostenibile